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November 13, 1995

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VIA HAND DELIVERY

EX PARTE

Mr. William F. Caton
Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, D.C. 20554

Re: Schlumberger Meter Communications Systems;
PR Docket No. 92-235

Dear Mr. Caton:

On November 9, 1995, Schlumberger Meter Communications Systems ("Schlumberger") and its undersigned counsel, Raymond A. Kowalski, met with legal advisors for the Chairman and Commissioners and with the a member of the Wireless Telecommunications Bureau to discuss the above-captioned proceeding. Meetings were with Ruth Milkman in the office of Chairman Hundt, Rudolfo Baca in Commissioner Quello's office, David Furth in Commissioner Chong's office, Lisa Smith in Commissioner Barrett's office, and Robert McNamara, Chief of the Private Wireless Division. Schlumberger was represented by Ross D. Malme, its Director of Marketing, and by Michael Reynolds, Program Manager. Attendees were provided several handouts, including MAPS™ literature and copies of filings on this issue that are already on record with the Commission. A copy of all materials provided to participants during the course of the discussions is enclosed for the record.

Should you have any questions, please contact the undersigned.

Sincerely,

Raymond A. Kowalski

Raymond A. Kowalski

Enclosures

No. of Copies rec'd 0+3
List ABCDE

Ex Parte Presentations

To the

Federal Communications Commission

November 9, 1995

8:30 a.m. Breakfast with Ray Kowalski at Grand Hyatt Hotel

** Meetings at FCC, 1919 M Street, N.W. **

10:00 a.m. Office of Chairman Hundt (Suite 814)
Ruth Milkman, Senior Legal Advisor

10:30 a.m. Office of Commissioner Quello (Suite 802)
Rudolfo Baca, Legal Advisor

Office of Commissioner Ness (Suite 832)
Unavailable this date

11:00 a.m. Office of Commissioner Chong (Suite 844)
David Furth, Legal Advisor

11:30 a.m. Office of Commissioner Barrett (Suite 826)
Lisa Smith, Legal Advisor

1:30 p.m. Office of the Chief, Wireless Telecommunications Bureau (2025 M Street, Room 8010)
Mr. Robert McNamara, Deputy Chief, Wireless Division

* * *

Subject: PR Docket No. 92-235, "Spectrum Refarming"

Issue: Preservation of low-power (2 W) offset frequencies for automated meter reading applications

Presenter: Schlumberger Meter Communications Systems
Norcross, Georgia

Ross D. Malme, Director of Marketing
Michael Reynolds, Program Manager
Raymond A Kowalski, Telecommunications Counsel

Handouts: MAPS™ Literature
Copies of Comments, Petition for Reconsideration

Visual Aid: Actual radio units

AMRT
A joint venture parnership between Motorola Inc. and Schlumberger Inds. Inc.

3155-A Northwoods Pkwy Norcross Ga. 30071
Ph : (404) 417-2949 fax : (404) 417-2961

August 18, 1995

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington D.C. 20554

In the Matter of	)	
	)	
Replacement of Part 90 by Part 88 to	)	
Revise the Private Land Mobile Radio	)	
Services and Modify the Policies	)	
Governing Them	)	
	)	
and	)	**PR DOCKET NO. 92-235**
	)	
Examination of Exclusivity and	)	
Frequency Assignment Policies of	)	
the Private Land Mobile Radio Services	)	

PETITION FOR RECONSIDERATION AND CLARIFICATION

Advanced Meter Reading Technologies (AMRT) hereby files this Petition for Reconsideration and Clarification of the Commission's decision in the above captioned proceeding. AMRT, a manufacturer of low power remote meter reading technologies, is most concerned about the continued availability of adequate spectrum for low power private land mobile operations.

BACKGROUND: AMRT, a joint venture between Schlumberger Industries, Inc., and Motorola, Inc., has developed automatic remote meter reading technology for use in the private land mobile UHF frequency bands. As the Commission is fully aware, automatic meter reading provides energy utilities with real time information on its load distribution thus enabling the adjustment and regulation of energy flow to better reduce costs and improve operational efficiencies. Radio based meter reading networks provide for a low cost, reliable infrastructure that significantly increase the functionality of such systems.

AMRT is developing a variety of meter reading solutions for utilities. These solutions include the installation of radio frequency Meter Interface Units (MIUs) that have both transmit and receive capabilities, and MIU devices that simply transmit their usage information automatically and intermittently. The more sophistication designed into the MIU device, the more capability utilities will

have to monitor and control energy usage to individual consumers. While most designs call for fixed, point-to-multipoint configurations, AMRT is also developing systems that allow walk-by or drive-by measurement readings. It is essential that customers be able to migrate to these additional functions as their needs and economics warrant.

AMRT's bi-directional designs call for MIU transmitter powers of approximately 100 milliwatts. Our Concentrator Interface Unit (CIU), which serves to redistribute the transmissions of multiple MIUs back to a central data collection point operates with a transmitter ERP of 400 milliwatts. As such, these applications are well suited to operate on channels in the 450-470 MHz band that are allocated for stations operating at 2 watts or less. To the extent, that the FCC's Report and Order reconfigures the available low power channels to high power use, low power users could be negatively impacted.

AMRT notes and appreciates the FCC's most recent action to "freeze" the acceptance of applications for high power use of the 450 MHz 12.5 kHz offsets until the frequency coordinating committees complete their task of proposing a plan to consolidate the various radio services and identify 450 MHz offset channels for continued low power use. This action was timely and necessary and allows the industry to proceed with its transition in a cautious and thoughtful manner. In this petition, however, AMRT offers recommendations for minor modifications of the FCC's new rules to further facilitate and promote efficient low power operations.

PETITION FOR RECONSIDERATION: As noted, the continued availability of low power channels in the 450 MHz band remains a primary concern of AMRT. Given the Commission's continued encouragement to the frequency coordinators to identify low power channels on a service category specific basis, we remain confident that our and millions of users' interests will be served. Indeed, AMRT intends to work closely with the coordinators to ensure that adequate low power spectrum is identified.

One additional benefit that the FCC can provide to manufacturers of low power devices concerns the applicability of Section 90.217 which exempts transmitters operating with less than 120 milliwatts

from having to comply with most technical standards imposed on type accepted equipment.[1] As currently written, this section applies only to operations licensed under the Business Radio Service. AMRT requests that the applicability of this section be expanded to include all transmitters operating under 120 milliwatts regardless of the radio service. Such an action would provide manufacturers with additional design flexibility without increasing potential interference. This action would also be more fair since there is no real need in this instance to distinguish transmitters by radio service.

Indeed, the Commission has already determined that consolidation of the various radio services will occur. One possible scenario would have other existing industrial radio services merge with the Business Radio Service. In this fashion, additional radio services would fall under the scope of the rule on a somewhat arbitrary basis. The better result would be to expand the scope to include all transmitters operating with less than 120 milliwatts.

Another possible consolidation scenario would be the merging of the Business Radio Service with other radio services to form an entirely new radio service. In this case, the applicability of Section 90.217 to any radio service would be unclear. Lacking any information that would justify the limited nature of the rule, the best course for the Commission would be to clarify that the applicability of this rule section covers all private land mobile transmitters operating under 120 milliwatts.

The second matter of concern for AMRT relates to the new standard for spectrum efficiency adopted by the Commission.[2] The purpose of this new policy is to allow the development of alternative technologies provided that they offer similar efficiencies to the FCC benchmark technologies. As of August 1996, the equivalent spectrum efficiency standard provides that alternative technologies must have at least one talk path per 12.5 kHz and/or operate at data rates exceeding 4800 bits per second per 6.25 kHz. In January of 2005, the standards are increased to one talk path per 6.25 kHz and/or a data rate of 4800 bits per second per 6.25 kHz.

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1 47 C.F.R. Section 90.217 .
2 47 C.F.R. Section 90.203(j)(3) and (5).

AMRT
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AMRT believes that the Commission's new rules do not adequately recognize the spectrum efficiencies inherent in low power devices. When used as part of a frequency reuse scheme over a particular geographic area, low power transmitters offer more spectrum efficiency[3] than a single high powered data transmitter. In other words, multiple 100 milliwatt transmitters operating at 2400 bits per second will be able to serve many more homes than a single high powered transmitter operating at 9600 bits per second. And, the low power operations will far less impact on adjacent channel operations. For these reasons, AMRT requests that Section 90.203 be clarified to allow alternative showings of equivalent spectrum efficiencies such as low power frequency reuse systems.

CONCLUSION: The operation of low power transmitting devices such as AMRT's meter reading technology provides tremendous benefits to the American business community. The FCC has recognized these benefits and has encouraged the frequency coordinators to make special provisions for the continued existence of a low power service. By adopting the recommendation contained herein, the FCC will be taking greater strides to promote this industry without any negative effects to other users or spectrum efficiency. For these reasons, AMRT urges the FCC to expand the scope of Section 90.217 to cover all private land mobile radio services and to modify its standards for spectrum efficiency to recognize the benefits of low power, frequency reuse systems.

Respectfully Submitted,

Alain Bojarski
Vice President AMRT
3155-A Northwoods Parkway
Norcross, Ga. 30071
Phone : 770-417-2949

August 18, 1995

Appendix

[3] The appendix provides greater discussion on the equivalent efficiencies offered by low power devices.

AMRT
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August 18, 1995

APPENDIX

Table 2 in section 90.205 predicts 3 Km service area for 2W ERP system with a HAAT of 15 meters. This is consistent with Hata Okumura propagation prediction equations. We can derive effective service areas for lower ERP and antenna height systems and then compute the potential frequency reuse for these systems. The potential reuse factor will be a function of the ratio of the area of the 3 Km radius cell to the radius of the smaller cell, it will thus be proportional to the square of the two cell radii ratio.

The definition for equivalent spectrum efficiency used in section 90.203 is 4800 bps in a 6.25 Khz channel, which leads to 19200 bps in 25Khz.

In the fixed infrastructure AMR system developed by AMRT, cells will be 1 km radius. The power will be 100 mW and the antenna height will be approximately 6.67 meters.

Since HAAT has the effect of multiplying the ERP by a factor of 6dB for each doubling of height above 2 meters (Hata / Okumura) we can compute the cell radius for both 15 meter and 6.67 meter antennas. We can calculate the reuse based in relative areas, and then the minimum acceptable data rate based on a modified definition of spectrum efficiency.

AMRT proposes that a modified definition of spectrum efficiency for low power systems be derived as :

Minimum data rate - $R_d = 4800*B_w/F_r *15/H_a$

Where : R_d = minimum permissible data rate
B_w = channel bandwidth
F_r = frequency reuse
= A_3/A_r
= 3Km radius cell area/r Km radius cell area
H_a = Antenna height

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The proposed tables of data rate versus antenna height and ERP are shown below:

Table # 1 : for minimum data rate for 15m antenna height			
Transmit power	Cell radius	Frequency Reuse	Data rate/25 KHz
W	Km	times	bps
2	3	1.00	19200
1	2.35	1.63	11781
0.5	1.92	2.44	7864
0.25	1.54	3.79	5059
0.1	1.14	6.93	2772

Table # 2 : for minimum data rate for 6 meter antenna height			
Transmit power	Cell radius	Frequency reuse	Data rate/25 KHz
W	Km	times	bps
2	2.2	1.86	10325
1	1.72	3.03	6336
0.5	1.41	4.54	4229
0.25	1.13	7.06	2721
0.1	0.84	12.88	1491

The data rate shown in table 2 column 4, would be the minimum data rate for a low power device used in a frequency reuse scheme to acheive equivalent channel efficiency with that required in section 90.203

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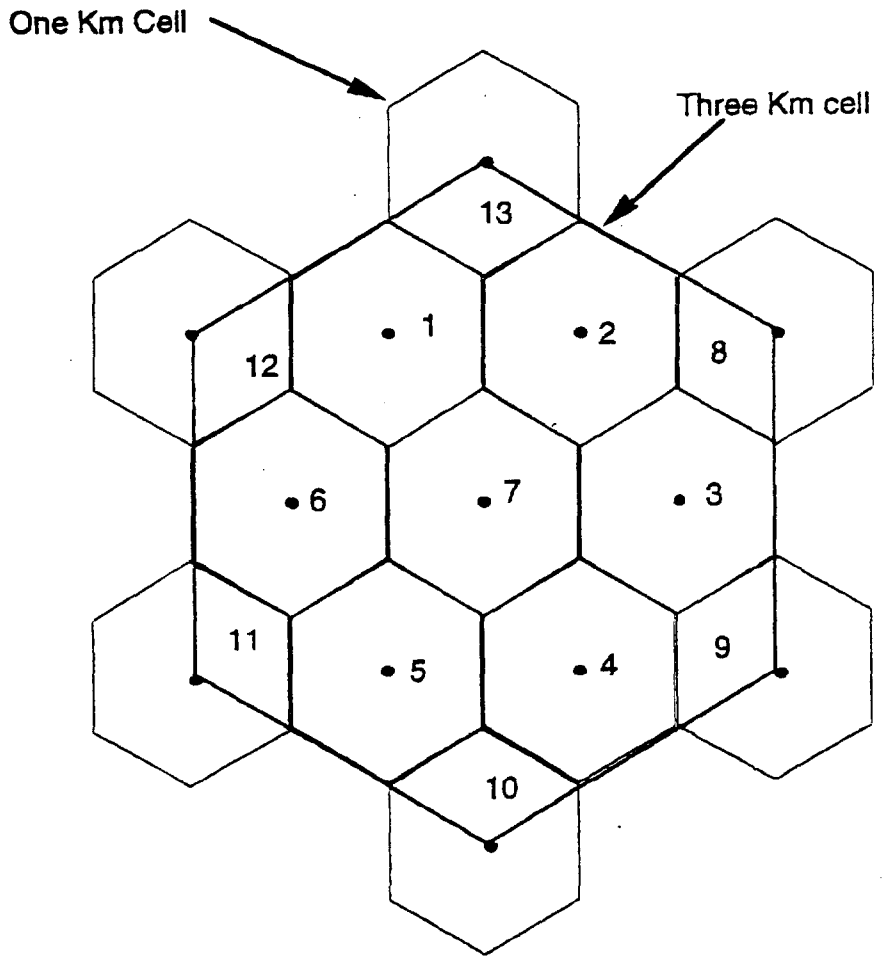
Diagram of a comparison of one 3 KM cell and a 1 Km cell overlay



This diagram represents the coverage of a 3 Km radius cell to a 1 Km radius cell

There is the equivalent of 8 one Km cells in a single 3 Km cell, which permits the possibility of 8 simultaneous links

BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Replacement of Part 90 by Part 88	)	**PR Docket 92-235**
to Revise the Private Land Mobile	)	
Radio Services and Modify the	)	
Policies Governing Them	)	
and	)	
Examination of Exclusivity and	)	
Frequency Assignment Policies of	)	
the Private Land Mobile Radio	)	
Services	)	

To: The Commission

PETITION FOR RECONSIDERATION

Schlumberger Meter Communication Systems (Schlumberger), by its counsel and pursuant to Section 1.106 of the Commission's rules (47 C.F.R. § 1.106), submits this Petition for Reconsideration pertaining to the Report and Order portion of the Commission's Report and Order and Further Notice of Proposed Rule Making in PR Docket 92-235 (FCC 95-255, released June 23, 1995).

Briefly stated, Schlumberger is concerned that certain aspects of the Report and Order do not comport with the Commission's fundamental decision not to require

users to replace existing systems.[1] Unless the Commission recasts certain provisions of the rules it has adopted, the relief granted in this proceeding to existing users will be illusory. In particular, utilities, the users of Schlumberger's automatic meter reading (AMR) systems will be adversely impacted.

STANDING

Through a joint venture with Motorola, known as Advanced Meter Reading Technologies (AMRT), Schlumberger supplies to electric, gas and water utilities lines of automatic meter reading (AMR) systems. Beyond their obvious uses to replace inefficient manual meter reading techniques, these systems have become vitally important for utilities to meed the demands of their customers for tamper detection, outage detection, remote disconnect/reconnect, real time pricing, demand billing, interruptible service contracts, distribution automation and demand-side management.

In their wireless configuration, these systems employ low-power, radio frequency devices operating on offset channels in the 450-470 Mhz band, which serve

---

[1] See, ¶ 7, bullet 2, of the Report and Order. See also, fn. 70: "Users currently licensed for 25 kHz operation on any of the low power offset channels will continue to be licensed for such operation until they decide to transition to narrowband equipment."

as the final link in automated communications networks which connect the utilities to meters on the premises of their customers.

THE COMMISSION SHOULD RECONSIDER THE CREATION OF HIGH-POWER OFFSET CHANNELS

The Commission's decision to allow high-power use of these offset channels has a serious impact on the planned and installed base of automated meters. Without specific instructions to the frequency coordinators to protect low-power offset users or a specific set-aside of low-power channels, the advent of high-power licensees on these channels will effectively negate the Commission's promise that existing uses and users may continue to operate indefinitely.[2] Simply put, on-channel co-existence between high- and low-power users is not possible.

Automated utility meters have been designed to have a useful life of approximately 10 years for gas or water meters and 15 to 20 years for electric meters. Therefore, the Commission's 10 year transition period to narrowband equipment is not adequate to avoid high costs due to equipment redesign and change-out.

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[2] The Commission has explicitly recognized this problem in the case of medical telemetry devices. See, Public Notice, DA 95-1771, released August 11, 1995, "FREEZE ON THE FILING OF HIGH POWER APPLICATIONS FOR 12.5 KHZ OFFSET CHANNELS IN THE 450-470 MHZ BAND (PR Docket 92-235, FCC 95-255)."

Moreover, the staged transition to narrowband equipment does nothing to protect existing systems or impending purchasers of existing systems from high-power, dispatch-type users who might succeed in licensing the new channels.

Accordingly, Schlumberger asks the Commission to reconsider § 90.267 to the extent that it fails to impose an affirmative obligation on frequency coordinators to protect low-power users, by stating protection criteria and/or to setting aside frequencies for low-power use. The present provisions of this rule give the coordinators the discretion, but not the direction, to protect low-power systems. In the competitive world of scarce radio frequencies, this is not realistic relief for low-power systems.

In view of the ongoing consideration of frequency coordination standards and channel set-asides, Schlumberger declines to suggest here the appropriate remedy beyond making the obligation to protect these important uses affirmative and not discretionary.

THE COMMISSION SHOULD RECONSIDER §§ 90.203(J)(3) AND (5) TO THE EXTENT THAT THEY FAIL TO PERMIT SHOWINGS OF EQUIVALENT SPECTRUM EFFICIENCY

In the wireless configuration, meters on the premises of utilities' customers are equipped with transmitters that operate at approximately 100 milliwatts. Clusters of these transmitters communicate with a "Concentrator," which is equipped with a transmitter that operates at approximately 400 milliwatts. A single Concentrator may service several hundred or even thousands of utility meters within a radius of up to a mile.

This is a highly efficient use of the radio spectrum. It can be demonstrated mathematically that this type of usage, even at a data rate of 2400 bps, meets or exceeds the Commission's new standards for channel efficiency, specified in §§ 90.203(j)(3) and (5). However, the rule as written fails to make any provision for such showings. Rather than processing the myriad waiver requests that are sure to be filed, the Commission can and should remedy the situation by adding the words "or equivalent" at the end of each sentence in subsections (j)(3) and (5).

EXEMPTION FROM TECHNICAL STANDARDS SHOULD NOT BE LIMITED TO THE BUSINESS RADIO SERVICE

Section 90.217, as written, provides an exemption from the technical standards of Subpart I of Part 90, for stations licensed in the Business Radio Service. This is a carryover from the present rule, but it ceases to have relevance in view of the Commission's decision to consolidate the separate radio services. This apparent oversight can be corrected by deleting the words "used at stations licensed in the Business Radio Service" from § 90.217(a).

CONCLUSION

While it is understandable that the Commission has in this proceeding focused on the mobile dispatch operating model, the Commission must be aware of the niche users that have found a home in Part 90. Users such as utilities, who for years have employed Part 90 frequencies, without detriment to dispatch operations, for increasingly important automation applications, have already played a significant role in maximizing efficient spectrum utilization. They should not now be swept aside as if narrowbanding were the only way in which to accomplish spectrum efficiency.

The actions requested herein merely preserve the ability of highly efficient automated meter reading devices to continue to operate. These devices already meet

the spirit of the Commission's refarming initiative and for that they should be rewarded, not penalized.

Respectfully submitted,

SCHLUMBERGER METER COMMUNICATION SYSTEMS

By: Raymond A. Kowalski

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Its Counsel
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(202) 434-4100

August 18, 1995

Schlumberger Ex Parté Presentation on PR Docket 92-235 to the FCC

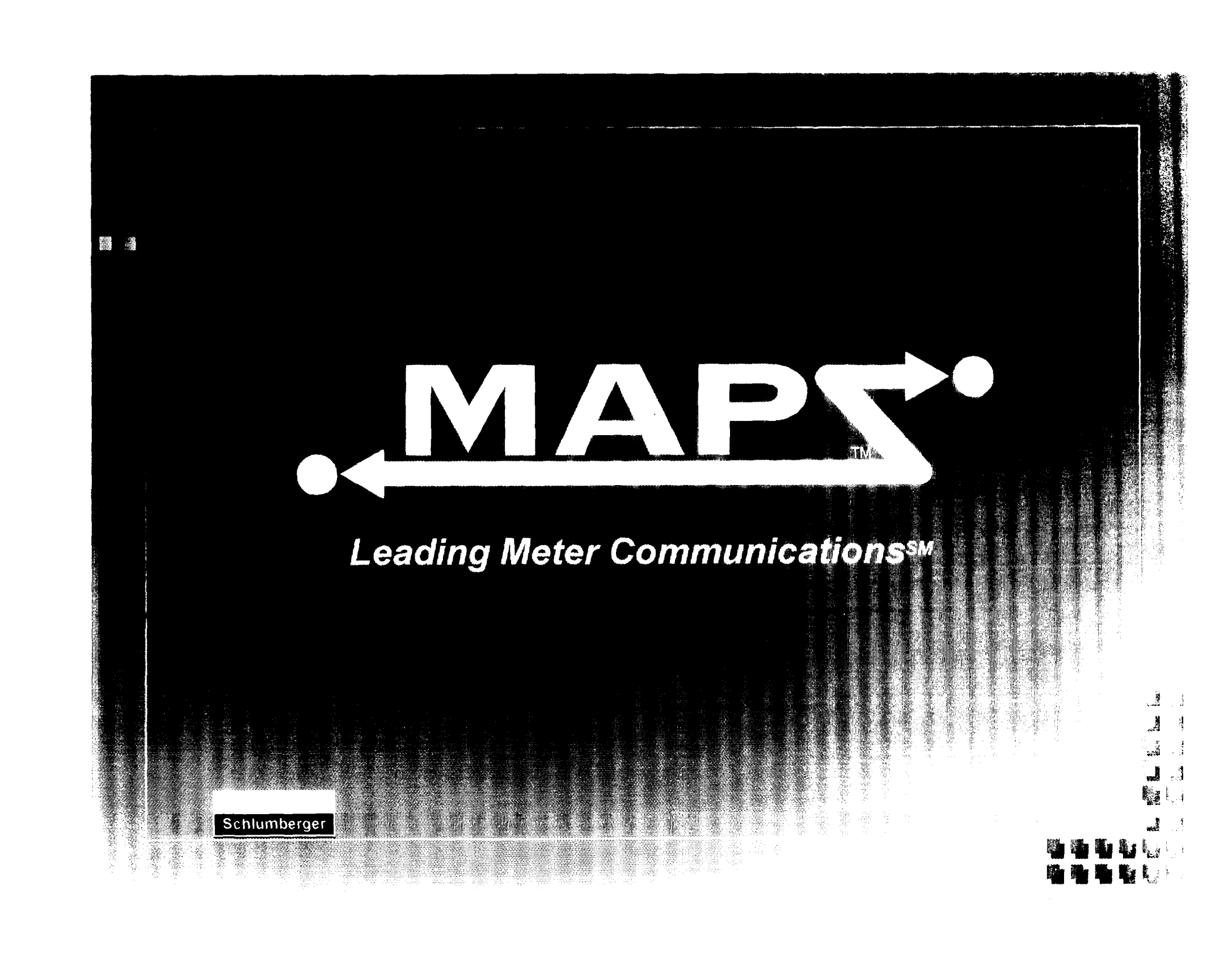
November 9, 1995

Schlumberger

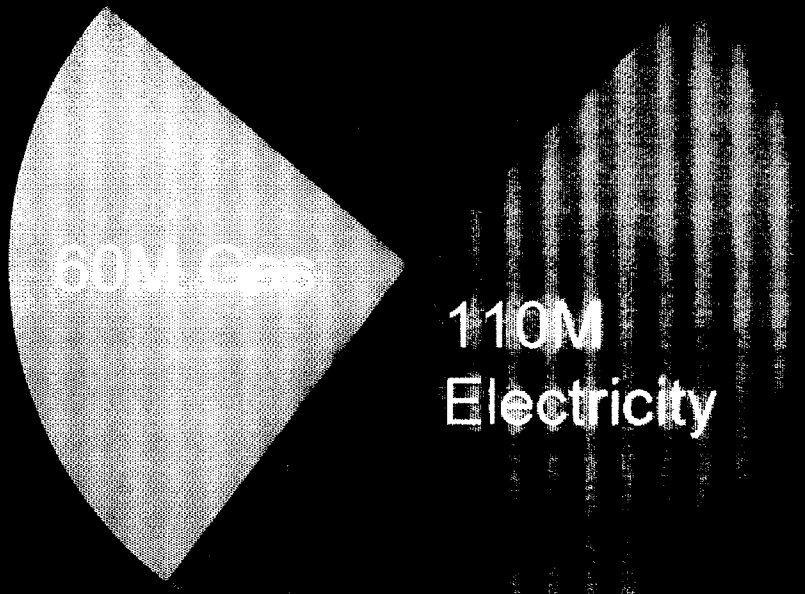
Schlumberger

AMRT

Schlumberger

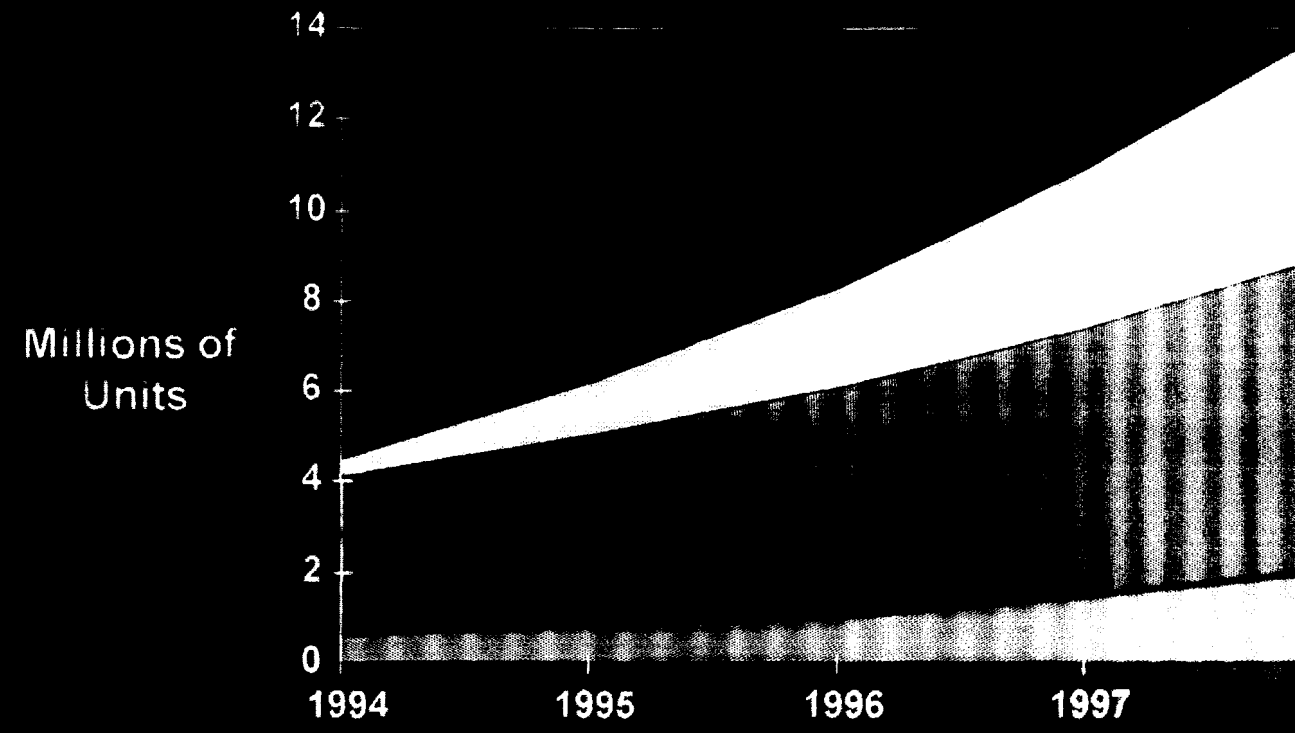

MAPS™
Leading Meter Communications℠
Schlumberger

Meter Population in North America



Schlumberger

1994-1998 AMR Installed Base Growth Projection NAM By Industry



Schlumberger

"Mergers and Acquisitions could shrink the ranks of industry players by at least one-third by the year 2000."

Public Utilities Fortnightly,
October 15, 1995

Schlumberger

"Deregulation will forever change the way utilities do Business."

George Dieter,
Director, Planning & Development
Telecommunications,
Baltimore Gas and Electric Company

Schlumberger

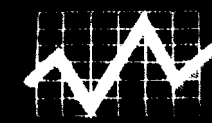
Why Wireless

- Easy to Install
- Low Cost
- Two-Way
- Ubiquity

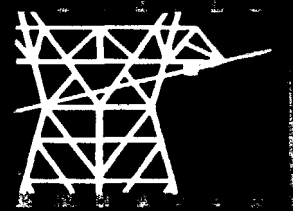
Schlumberger

WHAT IS MAPS?

RF Fixed Networks



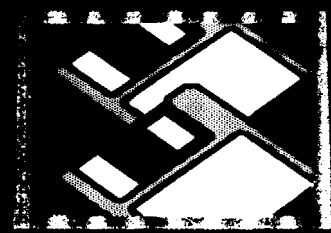
Measurement &
Analysis Software



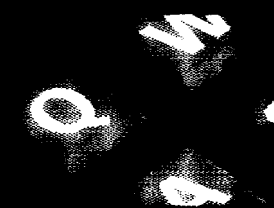
PLC Systems

Telephone Systems

Service & Support



Host Software



Programming Software

Handheld Systems

Leading Meter Communi

Schlumberger